



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,452	07/03/2003	Mark Betterly	BWC-115US	6598
23122	7590	10/21/2005	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			SAVAGE, MATTHEW O	
			ART UNIT	PAPER NUMBER
			1724	
DATE MAILED: 10/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/613,452

Applicant(s)

BETTERLY, MARK

Examiner

Matthew O. Savage

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9 and 21-33 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,5-9 and 21-33 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the source of cooling gas recited in claim 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1724

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 21-28, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Freeman et al.

With respect to claim 1, Freeman et al disclose a UV energy transmissive barrier 112 (see FIG. 1), a fluid passageway 114 defined by a U.V. energy transmissive barrier, a UV energy source 140A positioned proximal an exterior surface of the UV energy transmissive barrier to transmit UV energy through the barrier into the passageway, a UV energy sensor 224 positioned proximal an exterior surface of the UV energy transmissive barrier to sense UV energy transmitted through the barrier by the source 140A (see FIG. 10), the sensor being configured to detect a reduced amount of UV energy transmitted through the barrier (see lines 47-49 of col. 6).

Concerning claim 2, Freeman et al disclose the fluid passageway 114 as being configured to accommodate fluid flow.

As to claim 6, Freeman et al disclose the UV energy source 140A as being positioned adjacent the barrier 112.

Regarding claim 21, Freeman et al disclose the UV energy transmissive barrier 112 as including a hollow conduit (see FIG. 1).

As to claim 22, Freeman et al disclose the hollow conduit as being a pipe (see FIG. 1).

Regarding claim 23, Freeman et al disclose the fluid passageway 112 as being substantially round in cross-sectional shape (see FIG. 1).

Concerning claim 24, Freeman disclose an outer enclosure 192 (see FIG. 5) and a space between the outer enclosure 192 and the UV energy transmissive barrier 112.

Concerning claim 25, Freeman et al discloses the source 140 as being positioned in the space defined between the outer enclosure 192 and the UV transmissive barrier 112.

With respect to claims 26 and 28, Freeman et al disclose a plurality of sources or an array of UV sources 140A, 140B positioned in the space defined between the outer enclosure 192 and the UV transmissive barrier 112.

Concerning claim 27, Freeman et al disclose the sensor 224 being positioned in the space between the outer enclosure 192 and the UV transmissive barrier 112 since the sensor is disposed between the source 140B and the barrier 112 and the source 140B is surrounded by the enclosure 192.

With respect to claim 32, Freeman et al disclose a system for exposing a fluid to UV energy for treatment of the fluid, the system including a UV energy transmissive barrier 112 at least partially defining a fluid passageway 114, an outer enclosure 192 proximal to the UV energy transmissive barrier 112, the outer enclosure and the UV energy transmissive barrier at least partially defining a space therebetween, at least one UV energy source 140A positioned in the space defined between the outer enclosure and the UV energy transmissive barrier, and at least one UV energy sensor 224 positioned in the space defined between the outer enclosure 192 and the UV

Art Unit: 1724

energy transmissive barrier 112, the sensor 224 being configured to detect a reduced amount of UV energy transmitted through the barrier.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al in view of Koji.

Freeman et al fail to specify a UV energy source including an LED. Koji discloses an analogous apparatus including a UV energy source including an LED 6' (see FIG. 1) and suggests that such an energy source requires less space, has better efficiency, and a longer lifetime as compared to a UV lamp (see the abstract). It would have been obvious modified the apparatus suggested by Freeman et al so as to have included an ultraviolet energy source including an LED as suggested by Koji in order to provide an ultraviolet energy source requiring less space, having better efficiency, and a longer lifetime than a conventional UV lamp.

Claims 7-9, 29, 30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al.

With respect to claims 7, 29, and 33, Freeman et al disclose a plurality of UV energy sources 140A, 140B in the form of an array (see FIG. 1) but fails to specify a

Art Unit: 1724

plurality of UV energy sensors among the sources, however, providing a UV energy sensor positioned opposite each UV energy source would have been obvious in order to multiply the overall sensing ability of the apparatus (see St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7<sup>th</sup> Cir. 1977)).

As to claim 8, Freeman et al discloses the UV energy sources 140 as being positioned adjacent an external surface of the fluid passageway to transmit UV energy through the barrier.

Concerning claim 9, Freeman et al suggest UV energy sensors 224 as being positioned adjacent an external surface of the fluid passageway for sensing UV energy transmitted through the barrier.

As to claim 30, Freeman et al suggest sources 140 and sensors 224 provided around an interior circumference of the outer enclosure (see FIGS. 5 and 10 and lines 15-27 of col. 6).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al in view of Hallett.

Freeman et al fail to specify a source of cooling gas positioned to reduce heat generated in the space defined between the outer enclosure and the UV energy transmissive barrier. Hallett disclose the concept of providing a source of cooling gas (e.g., the cooling fan 40) positioned to reduce heat generated in a space adjacent a UV source 16 and suggests that such an arrangement prevents overheating of the source. It would have been obvious to have modified the apparatus of Freeman et al so as to

Art Unit: 1724

have included a source of cooling gas as suggested by Hallett in order to prevent overheating of the source.

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

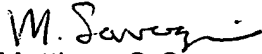
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.



Application/Control Number: 10/613,452  
Art Unit: 1724

Page 8

  
Matthew O Savage  
Primary Examiner  
Art Unit 1724

mos  
October 18, 2005